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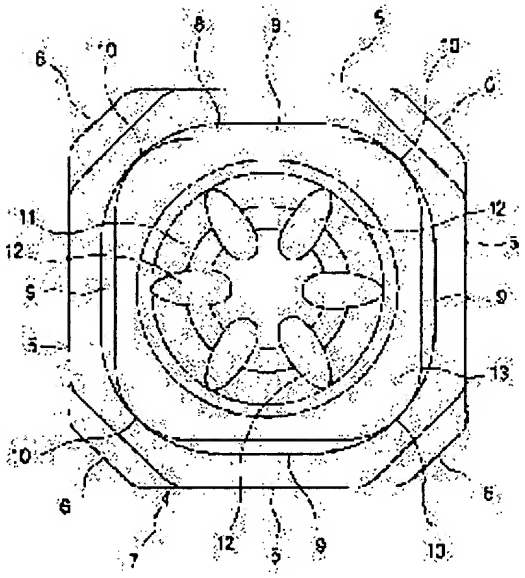
(54) SYNTHETIC RESIN SQUARE HEAT-RESISTANT BOTTLE

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent occurrence of irregular deformation and to ensure a satisfactory stability on setting for a bottom part of a heat-resistant square bottle body made of synthetic resin by biaxially stretched blow molding with a heat resistance given by means of heat setting.

SOLUTION: A grounding part 8 at the bottom part 7 of the heat-resistant square bottle body made of synthetic resin by biaxially stretched blow molding is constructed of flat wall part opposite grounding parts 9 each in a narrow planate grounding structure faceing each of flat wall parts 5 of a trunk part 4 and corner wall part opposite grounding parts 10 each in a linear grounding structure facing each of corner wall parts 6 of the trunk part 4, and thereby the amount of deformation by heat shrinkage at the flat wall part opposite grounding parts 9 and the amount of deformation by sink shrinkage at the time of releasing mold are made approximately the same with each other, ensuring a satisfactory stability for setting the bottle body.



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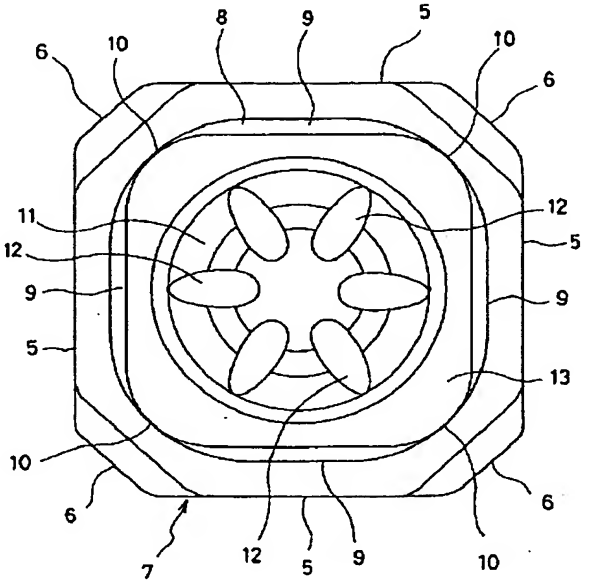
(54)【発明の名称】　合成樹脂製角形耐熱壜体

(57)【要約】
【課題】　２軸延伸ブロー成形され、かつヒートセットにより耐熱性の付与された合成樹脂製角形壜体の底部の不正変形ホッ製を防止して、安定して良好な座り機能を発揮する、合成樹脂製２軸延伸ブロー成形耐熱角形壜体を得る。
【解決手段】　合成樹脂製２軸延伸ブロー成形耐熱角形壜体の底部７の接地部８を、胴部４の平坦壁部５に対向した、幅狭な面接地構造の平坦壁部対向接地部９と、胴部４の角壁部５に対向した、線接地構造の角壁部対向接地部１０とから構成することにより、平坦壁部対向接地部９の熱収縮変形量と、角壁部対向接地部１０の離型時の引け収縮変形量とが略等しくなるようにし、良好な座り機能を得ることができるようにした。



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【特許請求の範囲】

【請求項１】　胴部(4) を角筒形状とした、２軸延伸ブロー成形され、かつヒートセットにより耐熱性が付与された合成樹脂製の角形壜体(1) であって、前記胴部(4) の下端に立ち上がり筒壁(14)で連設された底部(7) の、中央の陥没中央部(11)の周囲に形成されたテーパー壁部(13)と前記立ち上がり筒壁部(14)との間に形成される接地部(8) を、前記胴部(4) の平坦壁部(5) に対向して幅狭な面接地構造を有する平坦壁部対向接地部(9) と、前記胴部(4) の角壁部(6) に対向して線接地構造を有する角壁部対向接地部(10)とから構成した合成樹脂製角形耐熱壜体。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、２軸延伸ブロー成形され、かつヒートセットにより耐熱性が付与された合成樹脂製の角形壜体の底部の構造に関するものである。

【０００２】

【従来の技術】合成樹脂製２軸延伸ブロー成形壜体の底部は、図４に示すように、中央に略半球殻状に壜体内に陥没した陥没中央部１１を形成し、この陥没中央部１１の周囲に形成したテーパー壁部１３と、胴部との連結部分を構成する立ち上がり筒壁部１４との間に、面接地構造の接地部８’をリング状に形成して構成されているのが一般である。

【０００３】この接地部８’の構造は、壜体が角形であっても、さらにはヒートセット処理により耐熱性が付与されるものであっても変わりはなく、等しい幅でリング形状に成形されていた。

【０００４】

【発明が解決しようとする課題】しかしながら、上記した従来技術にあっては、壜体が角形構造であると、壜体胴部の平坦壁部５に対向する接地部８’部分と、壜体の角壁部６に対向する接地部８’部分と間に、平坦壁部５に対向する接地部８’部分に比べて角壁部６に対向する接地部８’部分の方が延伸量が大きいと云う差が生じ、この差に伴う肉厚の差に従って、成形性の良さ、および熱変形程度が明らかに相違し、これにより発生する変形が不正変形となって、“座り”が悪くなる、と云う問題があった。

【０００５】また、耐熱性を付与すべくヒートセットを施すと、平坦壁部５に対向する接地部８’部分も成形性が良くなり、底部全体の成形性が良くなるのであるが、成形品である壜体が比較的高い温度の状態で離型されるので、角壁部６に対向する接地部８’部分に比べて肉厚となっている平坦壁部５に対向する接地部８’部分の熱収縮量が大きくなり、このため底部に大きな不正変形が発生する、と云う問題があった。

【０００６】さらに、軽量化した耐熱角形壜体にあっては、肉薄である分、成形性が良くなり、ヒートセットによる成形性の向上との組合せにより、きわめて高い賦形性を得ることができるのであるが、角壁部６に対向する接地部８’部分の肉薄化が大幅に進行するので、上記の場合よりもさらに離型後の熱収縮量が大きくなり、底部の“座り”の悪さによる不良品発生率が高くなる、と云う問題があった。

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【０００７】そこで、本発明は、上記した従来技術における問題点を解消すべく創案されたもので、２軸延伸ブロー成形され、かつヒートセットにより耐熱性の付与された合成樹脂製角形壜体の底部の不正変形発生を防止することを技術的課題とし、もって安定して良好な“座り”機能を発揮する、合成樹脂製２軸延伸ブロー成形耐熱角形壜体を得ることを目的とする。

【０００８】

【課題を解決するための手段】上記技術的課題を解決する本発明の手段は、胴部を角筒形状とした、２軸延伸ブロー成形され、かつヒートセットにより耐熱性が付与された合成樹脂製の角形壜体の、胴部の下端に立ち上がり筒壁で連設された底部の構造に関するものであること、この底部の、中央の陥没中央部の周囲に形成されたテーパー壁部と、立ち上がり筒壁部との間に接地部を形成すること、この接地部を、胴部の平坦壁部に対向して位置して、幅狭な面接地構造を有する平坦壁部対向接地部と、胴部の角壁部に対向して位置して、線接地構造を有する角壁部対向接地部とから構成すること、にある。

【０００９】底部の接地部の内、平坦壁部対向接地部は、その壁構造が、幅狭な面接地構造となっているので、この平坦壁部対向接地部が位置する部分は、線接地構造とした場合に比べて延伸量が大きくなり、それだけ肉薄となって比較的良好な成形性を発揮することになる。

【００１０】これに対し、底部の接地部の内、角壁部対向接地部は、その壁構造が線接地構造となっているので、局部延伸状態となり、成形性の良い状態できわめて肉薄に成形される。

【００１１】また、壜体は、２軸延伸ブロー成形時にヒートセット処理が施されるものであるので、全体的に成形性が高められた状態にあり、これにより底部の成形性の良さは、充分に高いものとなる。

【００１２】このように、底部は、成形性の充分に高い状態で成形されるのであるが、角壁部対向接地部に比べて平坦壁部対向接地部の延伸量が少ないことには変わりはなく、このため離型後の熱収縮変形量は、角壁部対向接地部に比べて平坦壁部対向接地部の方が大きいままである。

【００１３】しかしながら、角壁部対向接地部は、局部延伸状態となって、きわめて肉薄に成形されているので、ヒートセット処理された状態で比較的高い温度のまま離型すると、金型の成形型面から離れた瞬間に、“引け”状に収縮変形するので、底部の接地部全体として

は、平坦壁部対向接地部と角壁部対向接地部とで等しく収縮変形することになる。

【００１４】この傾向は、底部の肉薄化程度に従って大きくなるので、軽量化壜体ほど、作用が顕著に現れることになる。

【００１５】

【発明の実施の形態】以下、本発明の一実施例を、図１～図３を参照しながら説明する。本発明による角形壜体１は、合成樹脂製の２軸延伸ブロー成形された耐熱壜体であって、上端にテーパー角筒形状をした肩部３を介して口筒部２を連設し、下端に底部７を連設した胴部４を、平坦壁部５と稜線部分を角壁部６として、角取りした正方形状の角筒構造としている。

【００１６】この四角筒形状をした胴部４の各平坦壁部５には、従来と同様に、減圧吸収用のパネル壁部分が凹設されており、また胴部４の中央部には、座屈強度を高めるための中央周溝が周設されている。

【００１７】底部７は、中央に、壜体内方に陥没し、その周壁に、放射方向に沿った太い突条状の補強リブ１２を、周方向に沿って等間隔に設けた陥没中央部１１を設け、この陥没中央部１１の周端縁から、緩やかに下降傾斜したテーパー壁部１３を連設し、このテーパー壁部１３の周端縁と、胴部４の下端縁に連設した立ち上がり筒壁部１４の下端縁との間に、接地部８を形成して構成されている。

【００１８】接地部８は、胴部４の平坦壁部５に対向する（平坦壁部５の直下に位置する）平坦壁部対向接地部９と、胴部４の角壁部６に対向する角壁部対向接地部１０とに大別され、平坦壁部対向接地部９は、幅狭な接地面を有する面接地構造（図３の実線図示部分参照）となっており、角壁部対向接地部１０は、線接地構造（図３の２点鎖線図示部分参照）となっている。

【００１９】平坦壁部対向接地部９は、その両端部分の幅を、角壁部対向接地部１０に近づくに従って減少（図２参照）させており、接地部８全体としては、胴部４の角筒形状と略同じの角形状となっている。

【００２０】

＊【発明の効果】本発明は、上記した構成となっているので、以下に示す効果を奏する。２軸延伸ブロー成形された合成樹脂製耐熱角形壜体の底部の接地部における、胴部の平坦壁部に対向した平坦壁部対向接地部と、胴部の角壁部に対向した角壁部対向接地部との間に、熱収縮変形量の差が殆ど生じることがなく、これにより底部の接地部が不正変形して、“座り”機能が劣化すると云う不都合の発生をきわめて有効に阻止することができる。

【００２１】また、ヒートセット処理さらには大幅な軽量化を施して、接地部の平坦壁部対向接地部と角壁部対向接地部との間の熱収縮変形程度の差が大きくなっても、肉薄化の促進に伴う離型時の“引け”状収縮変形の増大により、接地部各部での収縮変形が等しく、これにより接地部の収縮変形が、接地部の外観体裁を劣化させることなく、行われることになる。

【図面の簡単な説明】

【図１】本発明の一実施例を示す、全体正面図。

【図２】図１に示した実施例の、拡大底面図。

【図３】図２に示した実施例の、要部縦断拡大説明図。

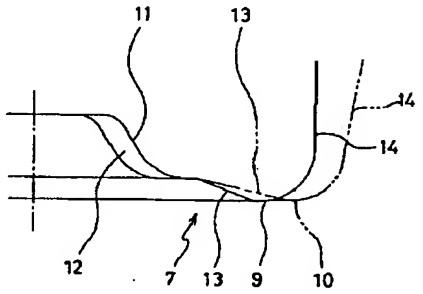
【図４】従来例を示す、拡大底面図。

【符号の説明】

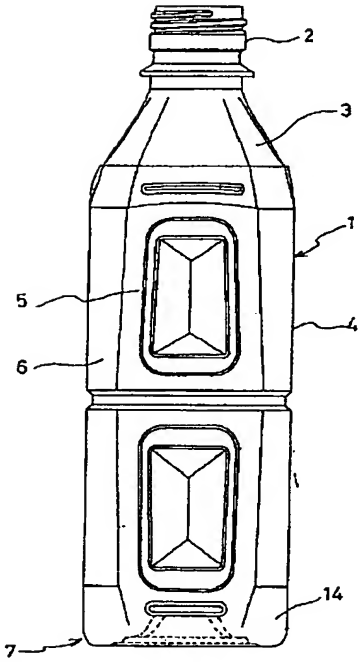
１　；　角形壜体
２　；　口筒部
３　；　肩部
４　；　胴部
５　；　平坦壁部
６　；　角壁部
７　；　底部
８　；　接地部
８’；　接地部
９　；　平坦壁部対向接地部
１０；　角壁部対向接地部
１１；　陥没中央部
１２；　補強リブ
１３；　テーパー壁部
１４；　立ち上がり筒壁部

＊

【図３】

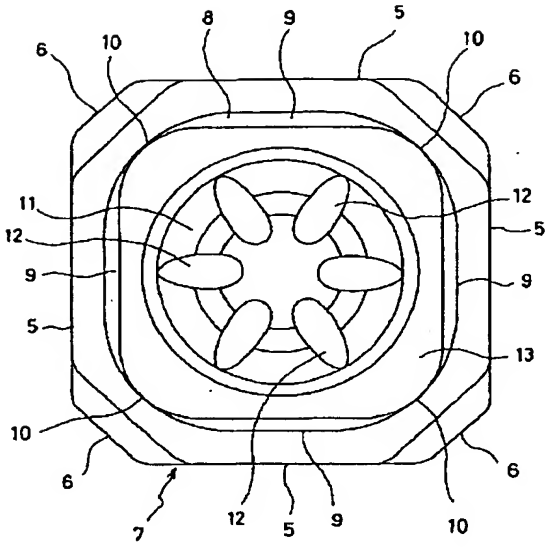


【図１】

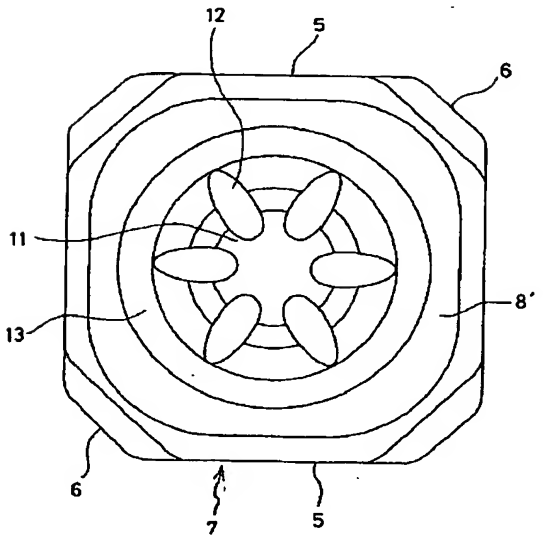


１　；角形壜体　２　；口筒部　３　；肩部
４　；胴部　５　；平坦壁部　６　；角壁部
７　；底部　８　接地部　８'　；接地部
９　；平坦壁部対向接地部　１０；角壁部対向接地部　１１；陥没中央部
１２；補強リブ　１３；テーパー壁部　１４；立ち上がり筒壁部

【図２】



【図４】



フロントページの続き

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DA03 DA08 DB01 DD05 EA03
EA04 EA05 EA12 FA03

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CLAIMS

[Claim(s)]
[Claim 1] drum section (4) Square shape bottle made of synthetic resin (1) which was made into the rectangular pipe configuration and with which biaxial extension blow molding was carried out, and thermal resistance was given by the heat setting it is -- said drum section (4) Pars basilaris ossis occipitalis (7) which started to the lower limit and were formed successively by the barrel wall (14) the touch-down section (8) formed between the taper wall (13) formed in the perimeter of a central cave-in center section (11), and said standup barrel wall section (14) Said drum section (4) Flat wall (5) The flat wall opposite touch-down section which counters and has narrow interview ground structure (9) Said drum section (4) Angle wall (6) Square shape heatproof bottle made of synthetic resin constituted from the angle wall opposite touch-down section (10) which counters and has line touch-down structure.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the structure of the pars basilaris ossis occipitalis of the square shape bottle made of synthetic resin where biaxial extension blow molding was carried out, and thermal resistance was given by the heat setting.
[0002]
[Description of the Prior Art] As shown in drawing 4 , as for the pars basilaris ossis occipitalis of the biaxial extension blow molding bottle made of synthetic resin, it is general to start, to form touch-down section 8' of interview ground structure in the shape of a ring between the barrel wall sections 14, and to be constituted [which constitutes the joining segment of the taper wall 13 which formed in the center the cave-in center section 11 which caved in in the bottle in the shape of abbreviation semi-sphere husks, and was formed in the perimeter of this cave-in center section 11, and a drum section].
[0003] Even if a bottle is a square shape and, as for the structure of this touch-down section 8', thermal resistance is further given by heat setting processing, there is no change and it was fabricated by equal width of face by the ring configuration.
[0004]
[Problem(s) to be Solved by the Invention] However, if it is in the above-mentioned conventional technique The touch-down section 8' part which counters the flat wall 5 of a bottle drum section as a bottle is square shape structure, The difference which says that the direction of the touch-down section 8' part which counters the angle wall 6 of a bottle, and the touch-down section 8 'touch-down section 8 which counters angle wall 6 compared with part' part which counters the flat wall 5 in between has the large amount of extensions arises. There was a problem which says that the goodness and heat deformation extent of a moldability are clearly different, the deformation which this generates turns into unjust deformation according to the thick difference accompanying this difference, and "stability" worsens.
[0005] Moreover, if a heat setting is performed that thermal resistance should be given, although a moldability becomes good and the moldability of the whole pars basilaris ossis occipitalis becomes good, the touch-down section 8' part which counters the flat wall 5 Since the bottle which is mold goods was released from mold in the state of comparatively high temperature, the amount of heat shrinks of the touch-down section 8 'touch-down section 8 which counters thick flat wall 5 compared with part' part which counters the angle wall 6 became large, and there was a problem which says that big unjust deformation occurs at the pars basilaris ossis occipitalis for this reason.
[0006] Furthermore, if it is in the lightweight-ized heat-resistant square shape bottle, the part and moldability which are closing in become good, and although very high size enlargement nature can be obtained, with combination with improvement in the moldability by the heat setting Since closing-in-ization of the touch-down section 8' part which counters the angle wall 6 advanced sharply, there was a problem which says that the amount of heat shrinks after mold release becomes large further rather than the above-mentioned case, and the defective incidence rate by the badness of the "stability" of a pars basilaris ossis occipitalis becomes high.
[0007] Then, this invention aims at obtaining the biaxial extension blow molding heatproof square shape bottle made of synthetic resin which makes it a technical technical problem to prevent the unjust c enogenesis of the pars basilaris ossis occipitalis of the square shape bottle made of synthetic resin with which it was originated that the trouble in the above-mentioned conventional technique should be canceled, and biaxial extension blow molding was carried out, and thermal resistance was given by the heat setting, has, is stabilized, and demonstrates a good "stability" function.
[0008]
[Means for Solving the Problem] The means of this invention which solves the above-mentioned technical technical

problem made the drum section the rectangular pipe configuration. It is a thing about the structure of the pars basilaris ossis occipitalis which started to the lower limit of a drum section of the square shape bottle made of synthetic resin with which biaxial extension blow molding was carried out, and thermal resistance was given by the heat setting, and were formed successively by the barrel wall, The taper wall formed in the perimeter of the central cave-in center section of this pars basilaris ossis occipitalis, It is in forming the touch-down section between the standup barrel wall sections and this touch-down section being located in the flat wall of a drum section face to face, being located in the flat wall opposite touch-down section which has narrow interview ground structure, and the angle wall of a drum section face to face, and constituting from the angle wall opposite touch-down section which has line touch-down structure.

[0009] Since the flat wall opposite touch-down section has the interview ground structure where that box-frame construction is narrow, among the touch-down sections of a pars basilaris ossis occipitalis, compared with the case where the part in which this flat wall opposite touch-down section is located is made into line touch-down structure, the amount of extensions becomes large, is pressing hard so much, and will demonstrate a comparatively good moldability.

[0010] On the other hand, among the touch-down sections of a pars basilaris ossis occipitalis, since the box-frame construction is line touch-down structure, the angle wall opposite touch-down section will be in a local extension condition, and will be extremely fabricated in the condition with a sufficient moldability by closing in.

[0011] Moreover, a bottle is in the condition that the moldability was raised on the whole since heat setting processing is performed at the time of biaxial extension blow molding, and, thereby, the goodness of the moldability of a pars basilaris ossis occipitalis will become high enough.

[0012] Thus, although a pars basilaris ossis occipitalis is fabricated in the condition of a moldability high enough, compared with the angle wall opposite touch-down section, there is no change in that there are few amounts of extensions of the flat wall opposite touch-down section, and the heat shrink deformation after mold release is still larger [the flat wall opposite touch-down section] for this reason compared with the angle wall opposite touch-down section.

[0013] However, if it releases from mold with comparatively high temperature where heat setting processing is carried out since the angle wall opposite touch-down section will be in a local extension condition and it is extremely fabricated by closing in, since contraction deformation will be carried out at the moment of separating from the die side of metal mold to the ** "to lengthen", as the whole touch-down section of a pars basilaris ossis occipitalis, it is with the flat wall opposite touch-down section and the angle wall opposite touch-down section, and contraction deformation will be carried out equally.

[0014] Since this inclination becomes large according to closing-in-ized extent of a pars basilaris ossis occipitalis, a lightweight-ized bottle will appear [an operation] notably.

[0015]

[Embodiment of the Invention] Hereafter, one example of this invention is explained, referring to drawing 1 - drawing 3 . The square shape bottle 1 by this invention is a heat-resistant bottle with which biaxial extension blow molding of the product made of synthetic resin was carried out, and makes the drum section 4 which formed the opening cylinder parts 2 successively through the shoulder 3 which made the taper rectangular pipe configuration upper limit, and formed partes basilaris ossis occipitalis 7 successively to the lower limit the rectangular pipe structure of the shape of a square which carried out chamfering by making the flat wall 5 and a ridgeline part into the angle wall 6.

[0016] As usual, a part for the panel wall for reduced pressure absorption is cut in each flat wall 5 of the drum section 4 which carried out the shape of this square cartridge, and the central circumferential groove for raising buckling strength is attached around the center section of the drum section 4 at it.

[0017] A pars basilaris ossis occipitalis 7 the reinforcing rib 12 of the shape of a thick protruding line which caved in to the method of the inside of a bottle, and met in the center in the radiation direction at the peripheral wall The cave-in center section 11 prepared at equal intervals along the hoop direction is formed, and the taper walls 13 which carried out the downward inclination gently are formed successively from the peripheral edge edge of this cave-in center section 11. The peripheral edge edge of this taper wall 13, It formed successively and starts on the lower limit edge of a drum section 4, and the touch-down section 8 is formed between the lower limit edges of the barrel wall section 14, and it is constituted.

[0018] The flat (located directly under flat wall 5) wall opposite touch-down section 9 to which the touch-down section 8 counters the flat wall 5 of a drum section 4, Divided roughly into the angle wall opposite touch-down section 10 which counters the angle wall 6 of a drum section 4, the flat wall opposite touch-down section 9 has the interview ground structure (refer to the continuous-line illustration part of drawing 3) of having a narrow ground plane, and the angle wall opposite touch-down section 10 has line touch-down structure (refer to the two-dot chain line illustration part of drawing 3).

[0019] the flat wall opposite touch-down section 9 approaches the angle wall opposite touch-down section 10 in the

width of face for the both ends -- it is al[redacted]and follows and decreases (refer to draw[redacted]2) -- making -- **** -- as the touch-down section 8 whole -- the recta[redacted]lar pipe configuration of a drum section [redacted]d abbreviation -- it is the shape of same square shape.

[0020]

[Effect of the Invention] Since this invention has the above-mentioned composition, it does so the effectiveness taken below. Between the flat wall opposite touch-down section which countered the flat wall of a drum section in the touch-down section of the pars basilaris ossis occipitalis of the heatproof square shape bottle made of synthetic resin by which biaxial extension blow molding was carried out, and the angle wall opposite touch-down section which countered the angle wall of a drum section The difference of heat shrink deformation hardly arises, and thereby, the touch-down section of a pars basilaris ossis occipitalis can carry out unjust deformation, and can prevent very effectively inconvenient generating which says that a "stability" function deteriorates.

[0021] Moreover, even if it performs large lightweight-ization to a heat setting processing pan and the difference of heat shrink deformation extent between the flat wall opposite touch-down section of the touch-down section and the angle wall opposite touch-down section becomes large It will be carried out according to increase of the ** contraction deformation at the time of the mold release accompanying promotion of closing-in-izing "to lengthen", without the contraction deformation in each part of the touch-down section being equal, and contraction deformation of the touch-down section degrading the appearance appearance of the touch-down section by this.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

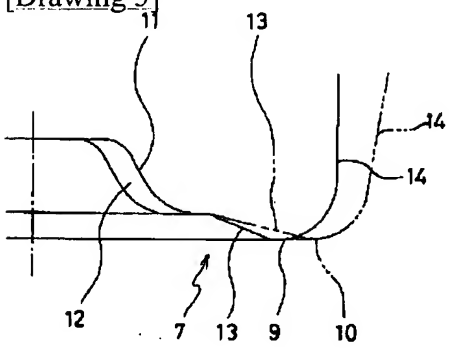
[Brief Description of the Drawings]
[Drawing 1] The whole front view showing one example of this invention.
[Drawing 2] The expansion bottom view of the example shown in drawing 1 .
[Drawing 3] The important section vertical section expansion explanatory view of the example shown in drawing 2 .
[Drawing 4] The expansion bottom view showing the conventional example.
[Description of Notations]
1 ; Square Shape Bottle
2 ; Opening Cylinder Part
3 ; Shoulder
4 ; Drum Section
5 ; Flat Wall
6 ; Angle Wall
7 ; Pars Basilaris Ossis Occipitalis
8 ; Touch-down Section
8'; Touch-down section
9 ; Flat Wall Opposite Touch-down Section
10; Angle wall opposite touch-down section
11; Cave-in center section
12; Reinforcing rib
13; Taper wall
14; It starts and is the barrel wall section.

[Translation done.]

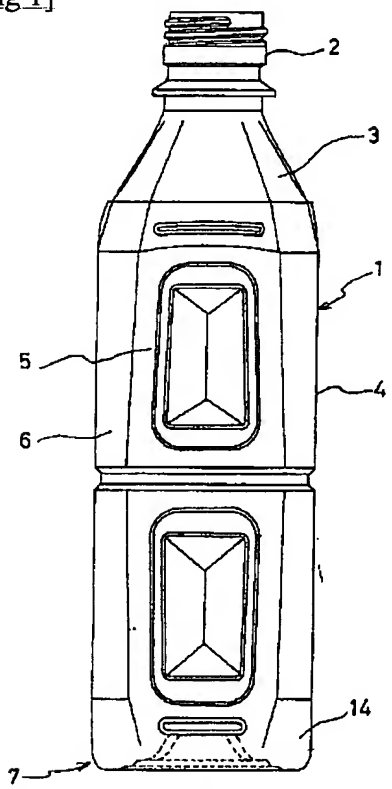
* NOTICES *

DRAWINGS

[Drawing 3]

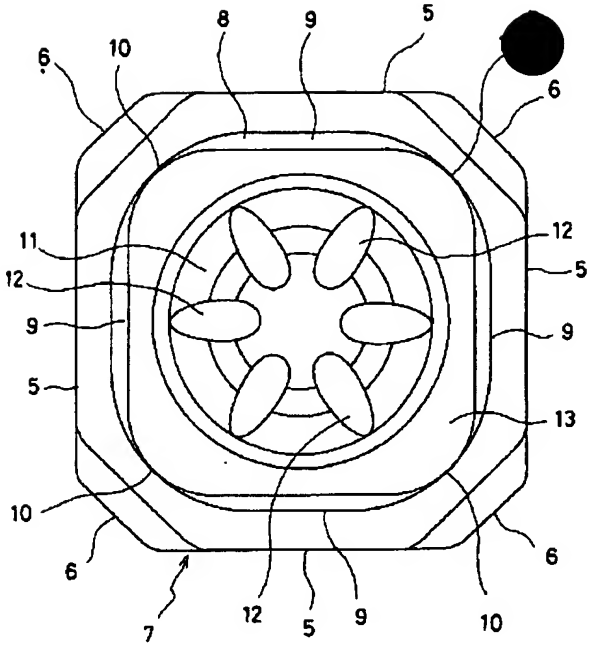


[Drawing 1]

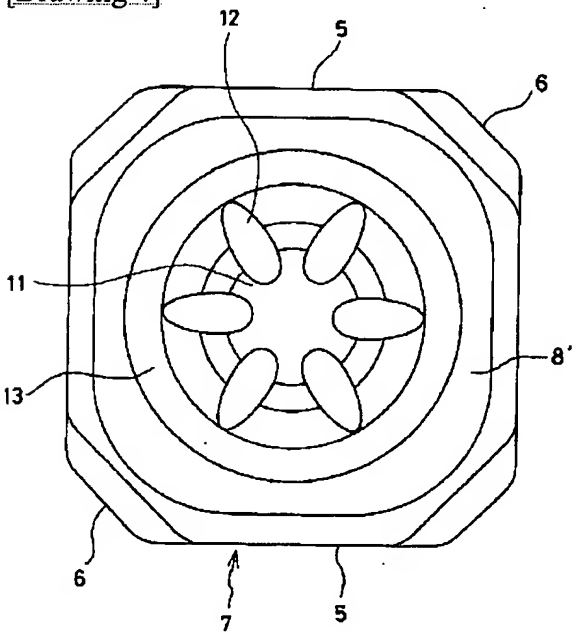


1 ；角形壜体	2 ；口筒部	3 ；肩部
4 ；胴部	5 ；平坦壁部	8 ；角壁部
7 ；底部	8 接地部	8' ；接地部
9 ；平坦壁部対向接地部	10；角壁部対向接地部	11；陥没中央部
12；補強リブ	13；テーパー壁部	14；立ち上がり筒壁部

[Drawing 2]



[Drawing 4]



[Translation done.]